

Form PTO-1449  
(REV. 8-83)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.  
015685.P031SERIAL NO.  
09/676,887

APPLICANT

Roger Rogard

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## INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DD	3,704,465	11/28/72	Masak et al.	—	—	
	3,774,209	11/20/73	Fleming et al.			
	3,798,645	03/19/74	Baurle et al.			
	3,852,749	12/03/74	Kohler			
	3,946,385	03/23/76	Ewen			
	4,005,379	01/25/77	Lerner			
	4,035,746	07/12/77	Covington Jr.			
	4,085,319	04/18/78	Deitz et al.			
	4,128,740	12/05/78	Graziano			
	4,263,568	04/21/81	Nemit			
DD	4,316,191	02/16/82	Sawatari et al.			

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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
DD	2 237 706 A	5/8/91	United Kingdom	—	—		
DD	2 295 524 A	5/29/96	United Kingdom	—	—		
DD	2 313 261 A	11/19/97	United Kingdom	—	—		

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

DD	Agree, "Blind Separation and Capture of Communication Signals Using A Multitarget Constant Modulus Beamformer", 10/7/89 Proc. IEEE Military Communications Conference, Vol. 2, pp. 1-12.
DD	Aschied et al., "An All Digital Receiver Architecture for Bandwidth Efficient Transmission at High Data Rates", 1989, IEEE Transactions on Communications, Vol. 37, No. 8, pp. 804-813.

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RR	4,375,622	03/01/83	Hollingsworth et al.	—	—	
RR	4,434,505	02/28/84	Gutleber	—	—	
RR	4,475,010	10/02/84	Huensch et al.	—	—	
RR	4,626,859	12/02/86	Stansfield	—	—	
RR	4,639,732	01/27/87	Acoraci et al.	—	—	RECEIVED
RR	4,639,914	01/27/87	Winters	—	—	AUG 30 2001
RR	4,658,096	04/14/87	West, Jr. et al.	—	—	Technology Center 2600
RR	4,737,794	04/12/88	Jones	—	—	
RR	4,737,975	04/12/88	Shafer	—	—	
RR	4,742,356	05/03/88	Kuipers	—	—	
RR	4,750,147	06/07/88	Roy, III et al.	—	—	

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DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO
0 639 035 A1	2/15/95	EPO	—	—		
0 713 261 A1	5/22/96	EPO	—	—		
0 777 400 A2	6/4/97	EPO	—	—		

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

RR	Franks, "Synchronization Subsystems: Analysis and Design", 1981, Digital Communications Satellite/Earth Station Engineering, pp. 294-335.
RR	Friedlander, "Direction Finding Using an Interpolated Array", 4/3/90, International Conference on Acoustics, Speech, and Signal Processing, Vol. 5, pp. 2951-2954.
RR	Friedlander et al., "Direction Finding for Wideband Signals Using an Interpolated Array", 1991, IEEE Publication, pp. 583-587.

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DR	4,775,997	10/04/88	West Jr. et al.	—	—	
	4,796,291	01/03/89	Makino			
	4,827,395	05/02/89	Anders et al.			
	4,829,554	05/09/89	Barnes et al.			
	4,837,800	06/06/89	Freeburg et al.			
	4,855,748	08/08/89	Brandao et al.			
	4,910,794	03/20/90	Mahany			
	4,922,517	05/01/90	West, Jr. et al.			
	4,926,186	05/15/90	Kelly et al.			
	4,940,963	07/10/90	Gutman et al.			
DR	4,947,452	08/07/90	Hattori et al.			

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DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO
DR 95/34103	12/14/95	WO	—	—		
DR 98/01963	1/15/98	WO	—	—		
DR 98/17037	4/23/98	WO	—	—		

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

DR	Ganz et al., "A Data-Derived Reference Signal Technique for Adaptive Arrays", IEEE Transactions on Communications, Vol. 37, No. 9, 9/1989, pp. 975-983.
DR	Ilitis et al., "A Digital DS Spread-Spectrum Receiver With Joint Channel and Doppler Shift Estimation", IEEE Transactions on Communications, Vol. 39, No. 8, 8/1991, pp. 1255-1267.

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Turner, Sean

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
00	4,955,082	09/04/90	Hattori et al.	—	—	
1	4,965,732	10/23/90	Roy, III et al.			
	4,965,849	10/23/90	Kunihiro			
	4,965,850	10/23/90	Schloemer			
	4,972,151	11/20/90	Rosen			
	4,989,204	01/29/91	Shimizu et al.			
	5,041,833	08/20/91	Weinberg			
	5,052,799	10/01/91	Sasser et al.			
	5,093,924	03/03/92	Toshiyuki et al.			
	5,103,459	04/07/92	Gilhousen et al.			
✓	5,109,535	04/28/92	Kume et al.			

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					YES	NO
00 98/17071	4/23/98	WO	—	—		

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00	Lee et al., "Decision Directed Carrier Recovery - Chapter 16: Carrier Recovery", 1994 Digital Communications, 2nd Edition, Kluwer Academic Pub., pp. 725-736.
00	Lee et al., "Decision Directed Carrier Recovery - Chapter 17: Timing Recovery", 1994 Digital Communications, 2nd Edition, Kluwer Academic Pub., pp. 737-764.
00	Lundell et al., "Applications of the Constant Modulus Adaptive Beamformer to Constant and Non-Constant Modulus Signals", Proceedings, 1998 Asilomar Conference on Signals, Systems, and Computers (ACSSC-1988), pp. 432-436.

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RR	5,124,697	06/23/92	Moore	—	—	
	5,142,253	08/25/92	Mallavarpu et al.			RECEIVED
	5,159,593	10/27/92	D'Amico et al.			AUG 30 2001
	5,255,210	10/19/93	Gardner et al.			Technology Center 2600
	5,260,968	11/09/93	Gardner et al.			
	5,262,789	11/16/93	Silverstein			
	5,274,844	12/28/93	Harrison et al.			
	5,283,540	02/01/94	Myer			
	5,299,148	03/29/94	Gardner et al.			
	5,335,249	08/02/94	Krueger et al.			
	5,345,596	09/06/94	Buchenhorner et al.			

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DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO
RR 7-170548	4/7/95	Japan	—	—		X

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

RR	Muhamed et al., "Direction of Arrival Estimation-Using Antenna Arrays", 1996, The Bradley Dept. of Electrical Engineering, Mobile and Portable Radio Research Group, Section 3.8, pp. 64-71.
RR	vander Veen et al., "A Constant Modulus Factorization Technique for Smart Antenna Applications in Mobile Communications", SPIE 1994 "Advanced Signal Processing Algorithms, Architectures, and Implementations V", Vol. 2296, pp. 230-241.
RR	Talwar et al., "Recursive Algorithms for Estimating Multiple Co-Channel Digital Signals Received at an Antenna Array", Proc. Fifth Annual IEEE Dual Use Technologies and Applications Conference.

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DR	5,361,303	11/01/94	Eatwell	—	—	
DR	5,367,559	11/22/94	Kay et al.			
DR	5,379,320	01/03/95	Fernandes et al.			
DR	5,387,915	02/07/95	Moussa et al.			
DR	5,423,072	06/06/95	Iwashita et al.			
DR	5,430,760	07/04/95	Dent			
DR	5,440,281	08/08/95	Wey et al.			
DR	5,448,621	09/05/95	Knudsen			
DR	5,457,812	10/10/95	Siira et al.			
DR	5,465,399	11/07/95	Oberholtzer et al.			
DR	5,471,647	11/28/95	Gerlach et al.			

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DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

DR	Papadias et al., "A Space-Time Constant Modulus Algorithm for SDMA Systems", 1996, Proceedings, IEEE 46th Vehicular Technology Conference, pp. 86-90.
DR	Talwar et al., "Blind Estimation of Multiple Co-Channel Digital Signals Arriving at an Antenna Array", 1993, Proc. 27th Asilomar Conference on Signals, Systems, and Computers, Vol. 1, pp. 349-342.
DR	Rashid-Farrokhi et al., "Joint Power Control and Beamforming for Capacity Improvement in Wireless Networks With Antenna Array", 1996 IEEE GLOBECOM 1996, Vol. 1, pp. 555-559.

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
JO	5,475,864	12/12/95	Hamabe	—	—	
	5,475,868	12/12/95	Duque-Anton et al.			
	5,497,505	03/05/96	Koohgoli et al.			
	5,515,378	05/07/96	Roy, III et al.			
	5,530,449	06/25/96	Wachs et al.			
	5,530,917	06/25/96	Andersson et al.			
	5,532,706	07/02/96	Reinhardt et al.			
	5,537,438	06/16/96	Mourot et al.			
	5,543,801	08/06/96	Shawyer			
	5,546,090	08/13/96	Roy, III et al.			
	5,548,813	08/20/96	Charas et al.			

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION
					YES NO

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JO	Rashid-Farrokh et al., "Transmit Beamforming for Cellular Communication Systems", Conference on Information Sciences and Systems, CISS-97; 3/1997, 4 pages.
JO	Rashid-Farrokh et al., "Downlink and Uplink Capacity Enhancement in Power Controlled Cellular Systems", Proceedings, 1997 IEEE 47th Vehicular Technology Conference, Vol. 2, 5/97, pp. 647-651.
JO	Rashid-Farrokh et al., "Downlink Power Control and Base Station Assignment", IEEE Communications Letters, Vol. 1, No.4, 07/97, pp. 102-104.

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JO	21/168

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W	5,555,445	09/10/96	Booth	—	—	
J	5,557,657	09/17/96	Barnett			
	5,565,873	10/15/96	Dean			
	5,566,209	10/15/96	Forssen et al.			RECEIVED
	5,576,717	11/19/96	Searle et al.			AUG 30 2001
	5,592,490	01/07/97	Barratt et al.			Technology Center 2600
	5,596,625	01/21/97	LeBlanc			
	5,603,082	02/11/97	Hamabe			
	5,603,089	02/11/97	Searle et al.			
	5,606,729	02/25/97	D'Amico et al.			

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W	Rashid-Farrokhi et al., "Transmit Diversity and Equalization for Power Controlled Wireless Networks", Conference Record 31st Asilomar Conference on Signals, Systems, and Computers, Vol. 1, 11/97, pp. 620-624.
W	Swindlehurst et al., "Analysis of a Decision Directed Beamformer", IEEE Transactions on Signal Processing, Vol. 43, No. 12, 12/95, pp. 2920-2927.

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DS	5,615,409	03/25/97	Forssen et al.	—	—	
	5,621,752	04/15/97	Antonio et al.			
	5,625,885	04/29/97	Nakazawa et al.			
	5,638,375	06/10/97	Dettro et al.			
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					YES	NO

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DP	5,694,416	12/02/97	Johnson	—	—	
DP	5,726,978	03/10/98	Frodigh et al.	—	—	
DP	5,742,904	04/21/98	Pinder et al.	—	—	
DP	5,745,858	04/28/98	Sato et al.	—	—	
DP	5,752,165	05/12/98	Hokkanen	—	—	
DP	5,809,009	09/15/98	Matsuoka et al.	—	—	
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(R)	5,818,918	10/06/98	Fujii			
	5,819,182	10/06/98	Gardner et al.			
	5,825,762	10/20/98	Kamin, Jr. et al.			
	5,828,658	10/27/98	Ottersten et al.			
	5,845,212	12/01/98	Tanaka			
	5,867,123	02/02/99	Geyh et al.			
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	5,887,038	03/23/99	Golden			
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JK	5,930,243	07/27/99	Parish et al.	—	—	
	5,955,992	09/21/99	Shattil			
	5,970,394	10/19/99	Arpee et al.			
	5,973,638	10/26/99	Robbins et al.			RECEIVED
	5,999,826	12/07/99	Whinnett			AUG 30 2001
	6,005,854	12/21/99	Xu et al.			TO: (REDACTED) Center 2600
	6,009,124	12/28/99	Smith et al.			
	6,018,317	01/25/00	Dogan et al.			
	6,018,643	01/25/00	Golemon et al.			

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JO	6,023,203	02/08/00	Parish	—	—	
	6,061,553	05/09/00	Matsuoka et al.			
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## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

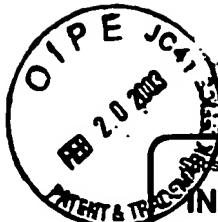

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Sheet	1	of	2	Application Number	09/676,887
				Filing Date	September 29, 2000
				First Named Inventor	Roger Rogard
				Art Unit	2663
				Examiner Name	Not yet assigned
				Attorney Docket Number	15685P031

## U.S. PATENT DOCUMENTS

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## FOREIGN PATENT DOCUMENTS

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PTO/SB/088 (10-01)

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<p>Sheet</p>		<p>2</p>	<p>of</p>	<p>2</p>	<p>Application Number</p>	<p>09/676,887</p>
<p>Filing Date</p>		<p>September 29, 2000</p>				
<p>First Named Inventor</p>		<p>Roger Rogard</p>				
<p>Art Unit</p>		<p>2663</p>				
<p>Examiner Name</p>		<p>Not yet assigned</p>				
<p>Attorney Docket Number</p>		<p>15685P031</p>				

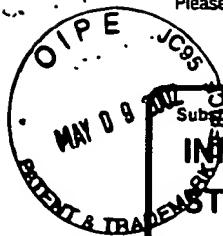
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## **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

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**Sheet**

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Complete If Known	
Application Number	09/676,887
Filing Date	September 29, 2000
First Named Inventor	Roger Kogard
Group Art Unit	2681
Examiner Name	Not Yet Assigned
Attorney Docket Number	15685P031

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Sheet 1 of

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Application Number	09/616,881
Filing Date	September 29, 2000
First Named Inventor	Roger Rogard
Group Art Unit	2681
Examiner Name	Not Yet Assigned
Attorney Docket Number	15685P031

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				Application Number	09/676,887
				Filing Date	September 29, 2000
				First Named Inventor	Roger Rogard
				Group Art Unit	2681
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	1568SP031
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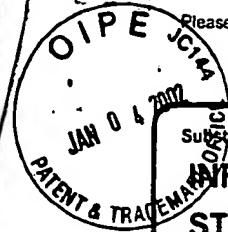
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STATEMENT BY APPLICANT**

## Sheet

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Application Number	09/676,887
Filing Date	September 29, 2000
First Named Inventor	Roger Rogard
Group Art Unit	2681
Examiner Name	Unassigned
Attorney Docket Number	15685P031

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<i>Complete if Known</i>	
Application Number	09/676,887
Filing Date	September 29, 2000
First Named Inventor	Roger Rogard
Art Unit	2663
Examiner Name	Not yet assigned
Attorney Docket Number	15685P031

## U.S. PATENT DOCUMENTS

## FOREIGN PATENT DOCUMENTS

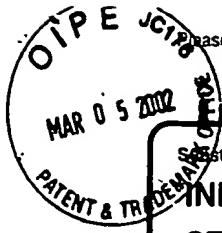
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<b>Sheet</b>	1	<b>of</b>	2	<b>Application Number</b>	09/676,887
				<b>Filing Date</b>	September 29, 2000
				<b>First Named Inventor</b>	Roger Rogard
				<b>Group Art Unit</b>	2681
				<b>Examiner Name</b>	Not Yet Assigned
				<b>Attorney Docket Number</b>	15685P031

Examiner Signature	<i>Tom Pepe</i>	Date Considered	<i>2/1/05</i>
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Sheet

2

of

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Application Number	09/676,887
Filing Date	September 29, 2000
First Named Inventor	Roger Rogard
Group Art Unit	2681
Examiner Name	Not Yet Assigned
Attorney Docket Number	1568SP031

### OTHER ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.*	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T*
①	1	Farsakh et al., "A REAL TIME DOWNLINK CHANNEL ALLOCATION SCHEME FOR AN SDMA MOBILE RADIO SYSTEM," IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, Vol. 3, 10/18/96, pgs. 1215-1220.	
①	2	Farsakh et al., "CHANNEL ALLOCATION AND DOWNLINK BEAMFORMING IN AN SDMA MOBILE RADIO SYSTEM," PIMRC '95, Wireless: Merging onto the Information Superhighway, 6th IEEE International Symposium on Toronto, Ont., Canada, 9/27-29/95, pgs. 687-691.	
①	3	Gerlach et al., "BASE STATION TRANSMITTER ANTENNA ARRAYS WITH MOBILE TO BASE FEEDBACK," IEEE Asilomar Conference on Signals, Systems & Computers, 1993, pgs. 1432-1436.	
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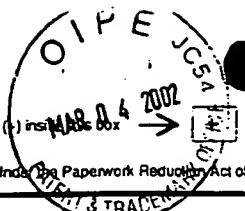
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1000 J. Neurosci., November 1, 2006 • 26(44):9992–10003

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				Application Number	09/676,887
				Filing Date	September 29, 2000
				First Named Inventor	Roger Rogard
				Group Art Unit	2681
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	15685P031
Sheet	2	of	2		

## OTHER ART - NON PATENT LITERATURE DOCUMENTS

Examiner Signature	<i>Team 1</i>	Date Considered	<i>8/11/05</i>
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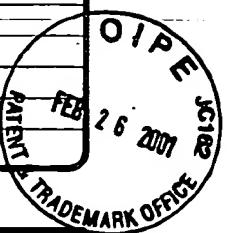


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Sheet	2	of	2	Application Number	09/676,887
				Filing Date	September 29, 2000
				First Named Inventor	Roger Rogard
				Group Art Unit	Unassigned
				Examiner Name	Unassigned
				Attorney Docket Number	15685P031



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